

Amendments to the Claims:

Following is a complete listing of the claims pending in the application, as amended:

Claims 1-59 (Canceled)

60. (currently amended) A process for applying a metal structure to a workpiece comprising:

providing a first electroplating bath including a source of metal ions as a principal metal species to be deposited during subsequent electroplating, boric acid, and a metal ion complexing agent;

providing a workpiece on which one or more microelectronic devices are to be formed;

exposing at least one surface of the workpiece to the first electroplating bath; and applying electroplating power between the at least one surface of the workpiece and an electrode disposed in electrical contact with the first electroplating bath to electroplate the principal metal species onto the at least one surface of the workpiece in an electrolytic first deposition process, wherein power is applied during at least a portion of the first deposition process for a workpiece surface current density of between 1.0 mA/cm^2 and 5.0 mA/cm^2 .

61. (currently amended) The process of Claim 60, wherein power is applied during at least a portion of the first deposition process at a workpiece surface current density of about 2.0 mA/cm^2 .

62. (currently amended) The process of Claim 60, wherein power is applied at a workpiece surface current density of between 1.0 mA/cm^2 and 5.0 mA/cm^2 over a time period of between 1.0 and 5.0 minutes.

63. (previously presented) The process of Claim 60, wherein power is applied in periodic pulses during deposition.

64. (previously presented) The process of Claim 63, wherein power is applied in forward pulses having a period of about 2 msec at a 50% duty cycle.

65. (previously presented) The process of Claim 60, further comprising depositing additional metal of the same principal metal species onto the metal deposited in the first deposition process using a second deposition process that is different than the first electrolytic deposition process.

66. (previously presented) The process of Claim 65, wherein the second deposition process occurs in an acidic electrolytic bath.

67. (previously presented) The process of Claim 65, wherein metal is deposited in the second deposition process at a higher rate than in the first deposition process.

68. (currently amended) The process of Claim ~~60~~65, wherein the metal deposited is copper.

69. (currently amended) The process of Claim ~~67~~65, wherein the source of metal ions comprises copper sulfate included at a level of 0.03 to 0.25 M.

70. (previously presented) The process of Claim 60, wherein the first electroplating bath comprises an alkaline bath.

71. (previously presented) The process of Claim 70, wherein the alkaline bath has a pH of at least 9.0.

72. (previously presented) The process of Claim 71, wherein the alkaline bath is pH adjusted with an alkaline agent selected from the group consisting of potassium hydroxide, ammonium hydroxide, tetramethylammonium hydroxide and sodium hydroxide.

73. (currently amended) The process of Claim ~~60~~70, wherein the first electroplating bath includes a conformality increasing agent.

74. (previously presented) The process of Claim 73, wherein the conformality increasing agent comprises ethylene glycol.

75. (currently amended) The process of Claim ~~70~~74, further comprising depositing a barrier layer on the surface of the workpiece before the first deposition process.

76. (previously presented) The process of Claim 75, wherein metal is plated directly onto the barrier layer in the first deposition process.

77. (previously presented) The process of Claim 75, further comprising depositing an ultra-thin seed layer of metal onto the barrier layer before the first deposition process.

78. (previously presented) The process of Claim 60, further comprising depositing an ultra-thin seed layer of metal onto the barrier layer before the first deposition process.

79. (previously presented) The process of Claim 60, wherein the complexing agent is selected from the group consisting of ED, EDTA, and a polycarboxylic acid.

80. (previously presented) The process of Claim 79, wherein the complexing agent is citric acid.

81. (previously presented) The process of Claim 60, wherein the source of metal ions comprises copper sulfate, and the complexing agent comprises ED, further comprising tetramethylammonium hydroxide in an amount sufficient to adjust the pH of the solution to at least 9.0.

82. (currently amended) A process for applying a metal structure to a workpiece comprising:

providing a first electroplating bath including a source of metal ions as a principal metal species to be deposited during subsequent electroplating, a metal ion complexing agent and an alkaline agent in an amount sufficient to adjust the pH of the bath to at least 9.0;

providing a workpiece on which one or more microelectronic devices are to be formed;

exposing at least one surface of the workpiece to the first electroplating bath; and

applying electroplating power between the at least one surface of the workpiece and an electrode disposed in electrical contact with the first electroplating bath to electroplate the principal metal species onto the at least one surface of the workpiece in an electrolytic first deposition process, wherein power is applied during at least a portion of the first deposition process for a workpiece surface current density of between 1.0 mA/cm^2 and 5.0 mA/cm^2 .

83. (currently amended) A process for applying a metal structure to a workpiece comprising:

providing a first electroplating bath including a source of metal ions as a principal metal species to be deposited during subsequent electroplating, boric acid, and a metal ion complexing agent;

providing a workpiece on which one or more microelectronic devices are to be formed;

exposing at least one surface of the workpiece to the first electroplating bath; and

applying electroplating power between the at least one surface of the workpiece and an electrode disposed in electrical contact with the first electroplating bath to electroplate the principal metal species onto the at least one surface of the workpiece in an electrolytic first deposition process, wherein power is applied during at least a portion of the first deposition process in periodic pulses for a workpiece surface current density of between 1.0 mA/cm^2 and 5.0 mA/cm^2 .

84. (previously presented) The process of Claim 83, wherein power is applied in forward pulses having a period of about 2 msec at a 50% duty cycle.

85. (currently amended) The process of Claim 84, wherein pulsed power is applied for a period of 1.0 to ~~5.0~~5.0 minutes.

86. (currently amended) A process for applying a copper structure to a workpiece comprising:

providing a workpiece on which one or more microelectronic devices are to be formed;

depositing an ultra-thin seed layer of copper onto a surface of the workpiece;

providing a first electroplating bath including copper as a source of metal ions as a principal metal species to be deposited during subsequent electroplating and an alkaline agent in an amount sufficient to adjust the pH of the bath to at least 9.0;

exposing the surface of the workpiece to the first electroplating bath; and

applying electroplating power between the surface of the workpiece and an electrode disposed in electrical contact with the first electroplating bath to electroplate the principal metal species onto the ultra-thin seed layer in an electrolytic first deposition process, wherein power is applied during at least a portion of the first deposition process for a workpiece surface current density of between 1.0 mA/cm²cm² and 5.0 mA/cm²cm².